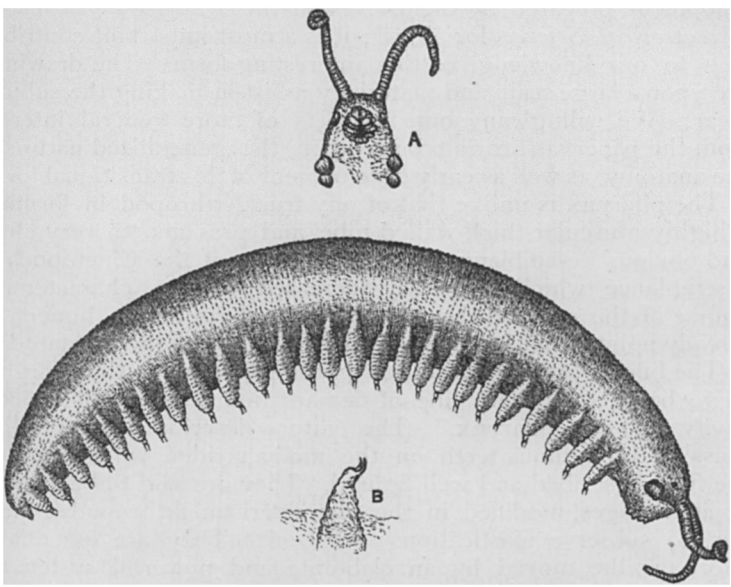
prossen in ihrem Leibe, und gleichsam durch Ableger geschehen muss" (von Gleichen 1770).—*F. Lichtenstein, Montpellier, France.*

[We gladly make room for this communication from our esteemed friend without further argument at present. The letter has been in hand for some time, and its publication delayed by an oversight.]

ZOÖLOGY.

NOTE ON A PERIPATUS FROM THE ISTHMUS OF PANAMA.—The only specimen of this interesting genus which, so far as we are aware, has ever been found in North America, was discovered by Mr. John McNiel, who collected one specimen at a station on the Panama railroad. This specimen is in the museum of the Peabody Academy of Sciences, Salem, Mass. I noticed very briefly the occurrence of this species in the annual report of the Peabody Academy published in April, 1869, and referred it,



though with hesitation, to *Peripatus edwardsii* Blanchard. Grube's specimens came from Venezuela. The late Professor James Orton collected a single specimen from the banks of the River Napo, which I also referred in the above-mentioned note to *P. edwardsii.* Afterwards in our "Zoölogy" we referred to this specimen as follows: "Either *P. edwardsii* Blanchard, or an undescribed species about four centimeters in length (with twenty-seven pairs of legs), inhabits the Isthmus of Panama." Where the Orton specimen now is I do not know.

The accompanying drawing represents the Panama specimen; it was made by Mr. Emerton, and well represents the alcoholic

specimen, the attitude not however being a natural one. Its color was black-brown. The figure represents the specimen magnified about three times. It had twenty-six pairs of feet. It may prove to be distinct from the South American *edwardsii* or the West Indian *juliformis*.—*A. S. Packard, Jr.*

THE STRUCTURE AND EMBRYOLOGY OF PERIPATUS.—This link between the worms and tracheate Arthropods has received much attention of late, owing to the recent elaborate account of it by Moseley, who brought from the Cape of Good Hope an abundance of alcoholic specimens. The late Professor Balfour was engaged just before his death in investigating the structure and embryology of *Peripatus capensis*, with the view of publishing a complete monograph of the genus. His drawings and notes have been edited by Messrs. Moseley and Sedgwick, who publish them, with an account of the external characters, generative organs and development, prepared by themselves, in the *Quarterly Journal of Microscopical Science* for April; it is a most important contribution to our knowledge of this interesting form. The drawings are upon a large scale and materially assist in making the subject clear. We will glean some extracts of more general interest from the paper, as bearing both upon the generalized nature of the anatomy, as well as early development of this transitional form.

The pharynx is unlike that of any true Arthropod in forming a highly muscular thick-walled tube, and presents "a very close and obvious resemblance to that of many of the Chætopoda, a resemblance which is greatly increased by the characteristic course of the sympathetic nerves. The form of the lumen, as already pointed out by Grube, resembles that of the Nematoda."

The buccal cavity is described in the paper before the pharynx, there being "no sharp line of demarcation between the buccal cavity and the pharynx." The editors describe a tongue-like mass[1] with chitinous teeth on the median ridge, while the jaws are fully described and well figured. They are said to be "a pair of appendages, modified in the characteristic arthropodan manner, to subserve mastication. * * * They are essentially short papillæ, moved by an elaborate and powerful system of muscles, which are armed at their free extremities by a pair of cutting blades or claws. The latter structures are, in all essential points, similar to the claws borne by the feet, and like them, are formed as thickenings of the cuticle. They have therefore essentially the characters of the claws and jaws of the Arthropoda, and are wholly dissimilar to the setæ of Chætopoda." Neither the figures nor descriptions of the present paper would entirely satisfy

[1] Although this mass is called a tongue, it would appear to us, judging solely by Figs. 5 and 7, to correspond rather to the membranous upper lip of insects and Limulus and Phyllopod Crustacea; the tongue in insects rests upon the floor of the buccal cavity, while this is represented as situated in advance of and rather above the jaws. Compare also Balfour's Embryology, p. 317.—*A. S. P.*

us as to the arthropodan nature of their teeth, but Professor Moseley's earlier memoir on the development of Peripatus, appears to us to indicate that they are the branch-homologues of the mandibles of Arthropoda, the mouth-region of the adult Peripatus being somewhat degenerated as compared with the embryonic structure.

We have here also interesting descriptions of the histology of the (for an Arthropod) strangely arranged nervous system, with its two widely separated nervous cords. The account of the tracheæ corroborates, in the main, Professor Moseley's earlier account. Says Balfour: "The apertures of the tracheal system are placed in the depressions between the papillæ or ridges of the skin. Each of them leads into a tube, which I shall call the tracheal pit (Fig. 30), the walls of which are formed of epithelial cells bounded towards the lumen of the pit by a very delicate cuticular membrane continuous with the cuticle covering the surface of the body. * * * Further investigation proved that the tracheæ actually started from the slightly swollen inner extremity of the narrow part of the pit, the expanded walls of the pit forming an umbrella-like covering for the diverging bundles of tracheæ. * * * The tracheæ themselves are extremely minute, unbranched (so far as I could follow them) tubes. Each opening by a separate aperture into the base of the tracheal pit, and measuring about 0.002^{mm} in diameter. They exhibit a faint transverse striation which I take to be the indication of a spiral fiber. * * * Moseley states that the tracheæ arise from the skin all over the surface of the body, but are especially developed in certain regions. He finds a 'row of minute oval openings on the ventral surface of the body,' the openings being 'situate with tolerable regularity in the centers of the interspaces between the pairs of members, but additional ones occurring at irregular intervals. Other similar openings occur in depressions on the inner side of the conical foot protuberance.' * * * There is a double row of apertures on each side of the median dorsal line, forming two sub-dorsal rows of apertures. The apertures are considerably more numerous than the legs. There is also a double row of openings, again more numerous than the legs on each side of the median ventral line between the insertions of the legs. Moseley speaks of a median row in this position. I think this must be a mistake. * * * Both the dorsal and ventral rows are very irregular." A considerable number of openings were found around the base of the feet, and the dorsal rows of tracheal apertures are continued into the head and give rise to enormous bundles of tracheæ.

The body-cavity is formed of three compartments—one central and two lateral, the latter containing the "segmental organs," which are regarded as probably of an excretory nature and homologous with the nephridia or segmental organs of the Chætopod worms.

Concerning the earliest phases of development of Peripatus, which had not been treated of by Moseley, Balfour left some drawings and sections, which, with other sections made from material which he left, are worked out by Moseley and Sedgwick. In a letter to Professor Kleinenberg he described the blastopore as an elongated slit-like structure extending along nearly the whole ventral surface; and further states, as the result of his examination of the few and ill-preserved embryos in his possession, that the mesoblast appears to originate as paired outgrowths from the lips of the blastopore.

The editors thus briefly summarize the more important facts of the early development of Peripatus:

1. The greater part of the mesoblast is developed from the walls of the archenteron.

2. The embryonic mouth and anus are derived from the respective ends of the original blastopore, the middle part of the blastopore closing up.

3. The embryonic mouth almost certainly becomes the adult mouth, *i. e.*, the aperture leading from the buccal cavity into the pharynx, the two being in the same position. The embryonic anus is in front of the position of the adult anus, but in all probability shifts back, and persists as in the adult anus.

4. The anterior pair of mesoblastic somites gives rise to the swellings of the preoral lobes and to the mesoblast of the head.

Peripatus is indeed a remarkable type. Agreeing with the lower worms in its pharynx, and especially its widely separated nerve cords, and with the annelids in its segmental organs; in its tracheæ and the mode of its early embryonic development it is without doubt an Arthropod. As Balfour has stated, no worm embryo has procephalic lobes, and a glance at Moseley's Fig. 2 (Balfour's Comparative Embryology, Fig. 169) shows conclusively that the animal is an Arthropod, rather than a worm. It is truly a connecting link between the Arthropods and worms, though dwelling just within the confines of the former sub-kingdom. With no real affinities to the Myriopods, it may be regarded as forming a sub-class next below them. Haeckel's term Protracheate, well defines, so far as a single word can do so, its ancestral nature.—*A. S. P.*

The Development of Renilla.—An abstract of Mr. E. B. Wilson's researches on the development of Renilla, a highly specialized halcyonoid polyp, appears in the Proceedings of the Royal Society of London. After describing the embryology and studying the mode of origin of the buds, he shows how the zoöids develop. It appears that the chief or zoöid head ("hauptzoöid") is formed at an early stage as a median bud upon the axial polyp, its function being to discharge water from the colony. "The other zoöids draw in water from the exterior by the action of the cilia which line their cavities. This is true also of the sex-

ual polyps in their early stages (though this function is entirely lost as they become older). Hence the zoöids are physiologically as well as anatomically identical with the young polyps; they are, in other words, polyps in a state of arrested development. The taking in of water is of vital importance to the organism, since the movements of the peduncle, by which the creature creeps, are effected by forcing the water to and fro. In this fact we find, probably, the explanation of the very early appearance of buds upon the axial polyp."

The facts, of development, as far as they go, indicate the derivation of Renilla from a form related to the Bathyptileæ, which probably possessed a horny axis. Bilateral symmetry is strongly exhibited both in the individual polyps and in the entire colony. The author concludes that the bilateral environment determines the bilateral structure.

Finally discussing the polymorphism of Renilla, the author attempts to show that the zoöids are probably not degenerated polyps, but buds in a state of arrested development, whose direct ancestors never possessed a more highly organized structure than at present.

A NEW PARASITIC COPEPOD CRUSTACEAN.—During the summer of 1880 and 1881 I received alcoholic specimens of a Caligus or fish-louse, gathered from the skin of the "salmon"[1] inhabiting Puget sound, Washington Territory.

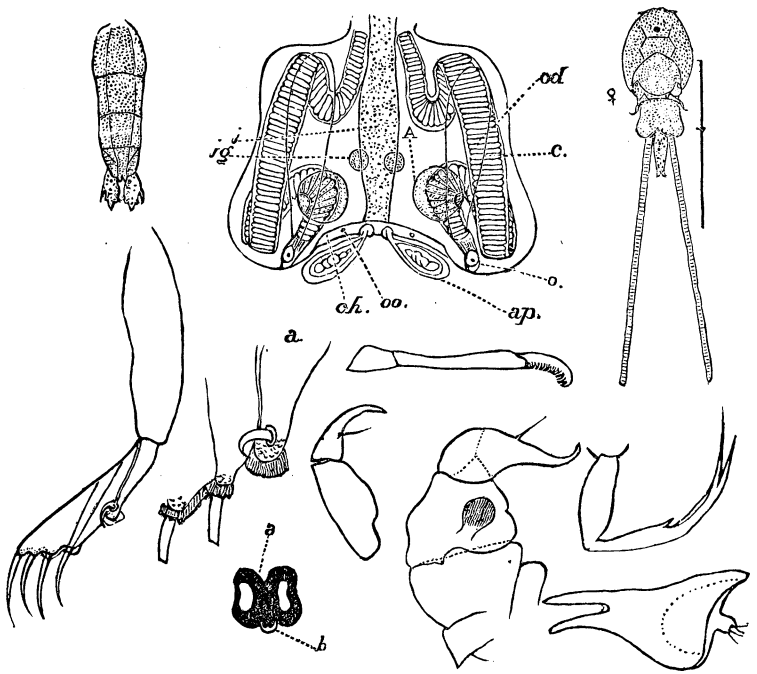
The female.—The form is convex, ovoid, color on dorsal surface dark rufous, on ventral somewhat lighter. The first abdominal segment has the form of that of *Caligus americanus* Dana and Pickering,[2] numerous specimens of which I have had lately occasion to examine. This segment measures $2\frac{1}{2}^{mm}$ in width by $2\frac{2}{5}^{mm}$ in length. The second abdominal segment measures 2^{mm} in length exclusive of the appendages, and three-fifths of a millimeter at its widest diameter. After treating it with acetic acid it is seen to consist of four distinct segments. This segment is cylindrical in form, slightly tapering toward its tip. The mandibles of the buccal mass appear to be two-jointed, the basal joint probably movable, the second joint connate. The first maxilliped is provided with a knob-like lateral process on the penultimate joint. This process is transversely ruled with parallel rugose lines, rendering it fit for trituration. The large hooked spine, the outer branch of the first maxilliped, is present and is of the same form as in *Caligus americanus*. The second rudimentary maxilliped, which has the shape of a short, thick, hexapodous mandible, is deeply cleft at its middle. The first pair of maxillipeds is two-jointed; instead of an ensiform extension it is furnished with a sharp tooth at the inner side near the middle of the second joint. This second joint terminates with a longer and a shorter blade-like flat bristle edged with a delicate pectinate membrane. The fourth pair of maxillipeds has a very stout terminal claw beset with one or two bristles at its middle. The inner side is notched near the base of the first joint, apparently for the insertion of the terminal joint, the claw. The second pair of natatory legs has its second joint continuous with the superior or outer branch. The inferior or inner branch is not connate with the second, but with the first joint of the superior branch. The inferior branch has eight long pinnulæ, the superior branch has four long and three shorter pinnulæ and several larger spines. Not too much stress should be put on such inferior characters, as I have met with two female specimens of *C. americanus* having also eight pinnulæ on the inferior branch of the same leg.

[1] Probably the "blue-back salmon." See AMER. NATURALIST, 1881, p. 177, "Observations on the salmon of the Pacific," by D. S. Jordan and Ch. H. Gilbert.

[2] *Amer. Jour. Sci. and Arts*, 1838.

Length of female 9½mm, exclusive of the egg-tubes; width across the widest part of thorax about 4½mm. Length of the egg-tubes 15mm, their diameter ⅖mm. Twenty-three female specimens.

Caligus pacificus, as we may call it, appears to be closely allied to *C. productus* Dana. No male specimens observed. The size of the specimens were remarkably uniform, only a trifling difference could be noticed. The shape of the foliaceous abdominal appendages as well as the arrangement of their setæ are better understood by an illustration than by a description. The visual



Caligus pacificus, female.

FIG. 1.—*Caligus pacificus*, dorsal view of female, twice enlarged. FIG. 2.—First abdominal segment, about thirteen times enlarged, ventral view; *i.* intestine; *od*, oviduct; *A*, large yellow (cement?) gland; *o*, orifice on a minute lappet, with which the external egg-tube connects, exit of oviduct; *ap*, spermatophores; *oo*, true female orifice (?); *ig*, gland; *c*, "false ovaries;" *ch*, chitinous bead. FIG. 3.—Second abdominal segment with appendages. FIG. 4.—Fifth leg of posterior thoracic segment; 4*a*, margin enlarged showing a hyaline fringe. FIG. 5.—Left mandible. FIG. 6.—Left first maxilliped. FIG. 7.—Right third maxilliped. FIG. 8.—Right second maxilliped, inner view. FIG. 9.—Fourth maxilliped. FIG. 10.—Eye; *a*, anterior; *b*, posterior side.

organ consists of two large lateral and two minute posterior masses of pigment. A semilunar larger refractive body encircles the posterior median mass of pigment. Two very small cylindrical vesicles are invariably seen juxtaposed on the ventral surface and in the median line of the posterior terminus of the first

abdominal segment. They are of a dark yellow color and are composed of two layers of coatings, an outer very thick and an inner very thin one. The outer is tough and elastic. The intima is a viscid glue-like mass. These organs, which I take for spermatophores, are fastened by their narrow tubular end to a chitinous transverse piece of integument. A little more laterally and on the same chitinous piece are two very minute circles, which may be the true sexual orifices. The oviduct and the so-called "false ovaries" do not differ from the description and illustration given by Dana and Pickering (*C. americanus*). A pair of smaller roundish "glands" occurs a little behind the middle of the intestinal tract. Another pair of larger roundish masses, of a yellow color, occurs more laterally and more posteriorly than the preceding. They may secrete the material for the egg-tubes.

ZOOLOGY AT THE NAPLES STATION.—The third volume of the briefer papers and memoirs emanating from the zoölogical station at Naples, dated 1882, form a thick octavo volume entitled Mittheilungen aus der Zoologischen Station zu Neapel. One of the more notable articles is that in continuance of Dr. Lang's researches on the comparative anatomy and histology of the nervous system of the flat-worms; also his paper on the structure of Gunda. To Cœlenterate literature belong A. Weissmann's paper on a peculiar organ of *Eudendrium racemosum;* Bedot's notice of the Siphonophores of the Gulf of Naples; Andres on a case of scissiparity in an Actinia; G. v. Koch's notice of the Neapolitan Gorgonians and the development of *Gorgonia verrucosa;* and his essay on the development of the coral-stock. A parasitic Eunice-like worm is described by J. W. Sprengel. The Crustacea have been treated by Kossmann in his paper on the Entomiscidæ, and his studies on the Notodelphyidæ. A contribution to ichthyology by C. Emery; and Dr. Dohrn's valuable studies on the primitive history of the vertebrate body are the more purely zoölogical contributions.

THE ELECTRIC ORGANS OF THE TORPEDO.—Professor Fritsch has, by his studies upon the development of the electric organs of the torpedo, proved that they are developed from the outer gill-muscles of the fifth gill-arch. These, which in rays and sharks form the extraordinarily powerful lower-jaw muscle, are absent in the torpedo, while the electric organs are developed in their place. In the first stage of its development the structure of the electric organ is similar to that of embryonic muscle, as distinct longitudinal striæ and traces of transverse striation are evident.

KING-BIRDS, TYRANNUS INTREPIDUS, FEEDING THEIR YOUNG UPON FRUIT.—In the summer of 1880 a pair of king-birds had their nest in the orchard, and during the season they became very familiar, and frequently alighted on the shrubbery around the

house. When the fruit of the bush honeysuckle, *Diervilla trifida*, began to ripen in June, the old birds visited the shrub often and ate very freely of the berries and carried a liberal supply to their young. During the last four days that the nestlings were confined at home, a large share of their food furnished by their parents consisted of this fruit, and as soon as the young were able to fly they were conducted by their parents to the bush and for several days honeysuckle fruit formed the greater part of their food.

So tame did these birds become that the whole family would occupy the bush for twenty minutes or half an hour at a time and eat fruit until I almost wondered where the little ones could store away so much, while the inmates of the house stood or sat in the doorway within four or five feet of them. We did not attempt to drive them away but much enjoyed their company, and this family of intrepid flycatchers continued to be frugivorous until the bush was gleaned, occasionally sandwiching the fruit with insects which attempted to pass.

I had observed the same act in previous years, and have since, but this was the most persistent fruit-eating of this kind that I have noticed.

I have repeatedly seen the young birds feed upon the wild soft fruits of the pasture before and after leaving the nest.—*Elisha Slade, Somerset, Mass.*

Characteristics of Women. — Some time since Professor Bischoff showed that the development of the labia majora in man constitutes a mark of distinction between man and the apes. In the orang only are they found in a rudimental condition. From an evolutionary standpoint their presence in man is doubtless due to the assumption of the erect position, which crowded the external genitalia into a narrower space and produced the additional fold in question.

Blanchard in the Bulletin of the Socété Zoölogique de France[1] describes the extraordinary development of the nymphæ in the bushwomen of South Africa, and gives chromolithographs of them copied from the drawings of Lesueur.

Bischoff has examined the characteristics of the Fuegian women who were recently exhibited in Germany and who died there. He finds nothing remarkable in their genitalia excepting the absence of hair. He says they did not menstruate while in Europe, and is inclined to think that this is their normal condition. He reminds us that the women of arctic regions do not menstruate during the colder half of the year, and that in the northern countries of Europe this function is often performed at intervals of two or three months.

He thinks the constant work which occupies the women of sav-

[1] 1883, p. 34.

age races and the poor of Europe, reduces the size of the fœtus and causes easy parturition.

ZOOLOGICAL NOTES.—*Cœlenterates.*—Jickeli publishes an article on the histology and anatomy of hydroid polyps in Gegenbaur's Morphologisches Yahrbuch, while a number of important articles on medusæ, particularly on the development of the spermatozoa and of the nematophores, by Merejkowsky, appear in the last number of the Archives de Zoologie Experimentale et Generale.—— In a paper on the cyclical development and the relationships of the Siphonophora, in the Annals and Magazine of Natural History for March, C. Chun regards *Monophyes primordialis* as the stem-form of the siphonophores; how certain other genera have arisen from this form is indicated; the very thoughtful essay is not of a nature to be condensed.

Mollusks. — The Solenoconchs, though so feebly represented upon the coasts, are, according to Dr. Fischer, both abundant and varied in the depths of the seas. Their organization permits them to live among the sand and mud, and though deprived of eyes they capture Foraminifera around them by means of their tentacular filaments. During the *Travailleur's* three expeditions Dentalia were brought up at each haul of the dredge, at some spots in great quantity. *Dentalium agile* was found by hundreds, though it does not occur upon the coasts, and two very large species were discovered, one between Morocco and the Canaries, at 2000 meters; the other off the south of Spain, at 400 meters. The last is exactly like a Pliocene species that occurs in Italy. These and many other observations tend to show that a great number of Pliocene forms yet exist in the depths, and that the Pliocene, Quaternary and recent epochs are intimately related, and constitute a homogeneous period quite distinct from the Miocene.

Arthropods.—In his contributions to the history of the fresh-water Copepoda, Mr. F. W. Cragin describes with much detail and with good figures some of our American species of Cyclops observed at Cambridge, Mass. Several descriptions are from the Russian, but the object of introducing them into the present paper is not made plain, as it is not stated whether they inhabit North America or not; neither are the Russian localities given.——At a recent meeting of the Linnean Society Sir John Lubbock read a paper upon the "sense of color amongst some of the lower Animals." He said some years ago M. Paul Bert made a series of interesting experiments with the common Daphnia, or water-flea, and he thought himself justified in concluding that its limits of vision were the same as our own. In a previous communication, however, he had shown that at the violet end of the spectrum the eyes of the Daphnia are affected by light which we were unable to perceive. More recently he had made further experiments, from which he concluded that the Daphniæ are able to dis-

tinguish yellow and green light, and that they prefer either to white light. No such result was given with blue or red solutions. In such cases the Daphniæ always preferred the uncovered half of the trough in which the experiments were made. It was, of course, impossible absolutely to prove that these creatures perceived colors; but these experiments certainly showed that rays of various wave-lengths produced distinct impressions on their eyes; that they preferred rays of light of such wave-lengths as produce upon our eyes the impression of green and yellow. On the whole, he concluded that Daphnia can distinguish not only different degrees of brightness, but also differences of color.——The paper of Csokor on the pig Demodex (*D. phylloides*) has been translated into the Proceedings of the Canadian Institute by Professor R. R. Wright. These mites cause the formation of subcutaneous abscesses frequently as large as a hazel nut. Its occurrence in Canada was announced by Wright in the NATURALIST for December last.

Vertebrata.—A number of ichthyological papers of a descriptive character appear in the Proceedings of the United States National Museum. Four new species of sharks from Mazatlan, Mexico, are described by Messrs. Jordan and Gilbert; one species of Carcharias is closely allied to the fresh-water shark of Lake Nicaragua. They also describe a new species of Carcharias from San Diego.——Dr. Bean notices the occurrence of a silver lamprey (*Ichthyomyzon castaneus* Girard) in Louisiana, which he refers, however, with *I. hirudo* and *I. argenteus* Kirkland to Petromyzon. Rosa Smith and Joseph Swain describe five new species, and notice at some length numerous other fishes from Johnston's island, located about seven hundred miles south-west of the Hawaiian islands.——A new species of Uranidea, from Lake Michigan, is also described by Gordon and Gilbert, who also notice at length certain fishes observed about Pensacola, Fla., and Galveston, Texas, and at Cape St. Lucas.——The pipe fish (Syngnathinæ) of the United States have been revised by J. Swain, his paper appearing in the Proceedings of the United States National Museum for 1882.——*Eurypharynx pelecanoides*, according to the illustrations copied from the *Magasin Pittoresque*, is certainly one of the most singular of earth's inhabitants. The head is short, occupying about an inch and a quarter out of the more than nineteen inches of the length of the fish, yet the mouth is capable of enormous dilatation from the structure of the jaws. The suspensorium is exceedingly long, and the mandible, of two pieces, measures about four inches. Thus the articular angle lies far back, along the side of the body. The upper jaw consists of a long and slender stylet, probably the intermaxillary.——Herr Krukenberg, of Heidelberg, has studied chemically and spectroscopically the different pigments that he has extracted from the feathers of birds. Most of these are red or yellow; green pigments are rare.

M. Meyer (S. B. Akad. Berlin, 1882, 547) has also taken up this subject, apropos of a Moluccan parakeet (*Eclectus polychlorus*) which, though certainly undomesticated, had certain citron-yellow plumes where the usual color is green, blue, or black—a peculiarity which can be produced artificially upon birds kept in captivity. Thus the Indians of South America pluck out the feathers of parrots, and treat the new roots with the milky secretion from the skin of a small batrachian, with the result that the new growth of feathers is yellow. The aborigines of Gilolo, by giving animal food to *Lorius garrulus*, transform its plumage into that of the *Lori rajah*. The natural color returns after an exclusively vegetable diet. The green color so common in birds is due to an admixture of a yellow pigment (*Psittacofulvine* Krukenberg) with a dark brown one; and Herr Krukenberg states that no blue, white, or green pigment can be found among the parrots. He believes that all the darker pigments are derived from one substance, probably identical with Coriosulphurine, which is thus the most widely spread pigment in birds' feathers. ——The spring birds of Nebraska are enumerated, with notes, by A. Hall in *Forest and Stream*.——Mr. H. F. Osborn gives in *Science*, for May 25, the results of an examination of the fœtal membranes taken from a female opossum which had been captured within a few days after impregnation. From this and other specimens and facts, Osborn concludes that the so-called false chorion of some of the lower placental mammals in the marsupials functions as a true chorion, *i. e.*, the functions of the allantois in the placental mammals are, in a rudimentary way, performed by the yelk-sac in the marsupials. "Finally, some genera of the marsupials probably show the attachment of the allantois to the subzonal membrane, which is the first step towards the establishment of an allantoic placenta."

PHYSIOLOGY.[1]

Locomotor System of Medusæ.—Mr. G. J. Romanes concludes his observations of the locomotor system of Medusæ—observations which throw a new light upon rhythmic action generally. He believes rhythmic action to be a primary endowment of contractile tissue, the excitability of which under the constant stimulation of the element it exists in is alternately exhausted and restored. The action of ganglia is superimposed on this, and is timed so as to coincide with the normal pulsatile action of the muscular tissue. Muscular tones he attributes to a higher irritability in the structure than is possessed by rhythmic tissues.

The Origin of Fat in the Body.—In Pflüger's Archiv, Bd. 31, P. II, Dr. Lebedeff tries to show that the common view that fat may arise in the body as a decomposition product of albuminous matter, is erroneous. Dead bodies, under certain condi-

[1] This department is edited by Professor Henry Sewall, of Ann Arbor, Michigan.